

Course No. 453

SMALL COMPUTER SYSTEMS MINICOMPUTERS, MICROPROCESSORS, AND DESKTOP COMPUTERS

DESCRIPTION

This course is designed for scientists, engineers, technicians, managers, and others who are involved with systems requiring computational support.

With the wide variety of small computers currently available, the system designer is faced with a complex selection and design process. This course will cover the operation, organization, programming, and capabilities of three classes of small processors: minicomputers, microprocessors, and desktop computers (sophisticated programmable calculators). The three types of processors will be compared and contrasted, since in many cases they are technically and economically competitive. Typical applications for each class of processor will be discussed in order to clarify the principles and concepts presented in the course.

At the conclusion of the course, the participants should be able to select and properly utilize a small computer system for a wide range of applications.

There are no academic prerequisites; however, it would be helpful if those attending had some experience in software design, computer architecture, and logic design (with some exposure to operating systems, file systems, assembly language, and high-level programming languages).

TOPICAL OUTLINE

MINICOMPUTERS

- Instruction sets
- Addressing schemes
- Memory mapping
- Microprogramming
- I/O Systems—DMA, programmed data transfers, interrupts
- Interfacing
- Operating Systems
- Programming languages
- Peripheral equipment
- Review of available products

MICROPROCESSORS

- Instruction sets
- Support circuits—RAMs/ROMs, I/O, clocks, etc.
- Microcomputer configurations
- I/O and interrupt techniques
- Programming techniques
- Development systems

DESKTOP COMPUTERS

- Programming techniques
- Interfacing
- Peripheral equipment

SYSTEM SELECTION

- Costs
- Speeds
- Software
- Interfacing
- Computing Power
- Development Effort

APPLICATIONS SURVEY

INSTRUCTOR

John H. Carson, Ph.D., is a computer scientist with RLG Associates, Inc., Reston, Virginia. His present work involves mini- and micro-computer system design. His past experience has been with the MITRE Corporation, Bell Telephone Laboratories, and Lehigh University in connection with the research and development of special mini- and micro-computer systems. He holds a Ph.D. from Lehigh University in information science and has lectured throughout the country on mini- and micro-computers.

TEXT

Minicomputers and Microprocessors: An IEEE Tutorial

FEE

The fee for the course is \$475. This includes lecture notes and supplies. Make checks and purchase orders payable to GWU, Continuing Engineering Education. Participants may delay payment until arrival. Parking is provided.

HOUSING AND MEALS

Housing and meals are not provided. However there is a wide variety of hotels, motels, and restaurants nearby. Information on available accommodations will be sent if requested.

LOCATION AND HOURS

Orientation will be at 8:15 a.m. on the first day in room 641 of the University Library, 2130 H St., N.W. (corner of 22nd and H), Washington, D.C. Classes will meet from 8:30 a.m. to 4:15 p.m. daily.

CERTIFICATE

Those attending the course will receive a Certificate of Completion.

CONTINUING EDUCATION UNITS (CEU)

Continuing Education Units (3.0) will be awarded for this course. The CEU is a unit of measurement for recording noncredit learning in continuing education programs. It provides a standardized means to measure in-service education. A permanent transferable record is maintained.

APPLICATIONS

Tentative or final registration should be made as soon as practicable. Apply by letter, telephone, or purchase order to Continuing Engineering Education Program, George Washington University, Washington, D.C. 20052, (202) 676-6106 or the toll free number (800) 424-9773.

SPECIAL COURSES

Arrangements can be made to design certain courses to meet the needs of an individual activity for presentation on or off campus.

OTHER COURSES

(Dates subject to change)

No.

IN WASHINGTON, D.C.

- 36 Fault Tree Analysis (Aug 22-26)
- 5 Statistical Methods in Reliability (Aug 22-26)
- 277 Electrical Equipment Maintenance (Aug 22-27)
- 451 Digital Encoding and Processing of Voice and Video (Aug 24-26)
- 407 Automated Document Storage and Retrieval Systems (Aug 24-26)
- 438 Lightning Technology (Aug 29-30)
- 112 Configuration Management (Aug 29-31)
- 363 Writing Professional/Technical Communications (Aug 29-Sep 1)
- 463 Signal Processing Systems (Aug 29-Sep 2)
- 406 Computer-Aided Ship Design (Aug 29-Sep 2)
- 437 Switched Networks for Data Communications (Sep 6-9)
- 396 Statistical Techniques for Use in Biomedical Studies (Sep 7-9)
- 250† Electric Power Systems Design (Sep 10-Dec 3)
- 378 Fiber and Integrated Optics (Sep 12-16)
- 353 Analysis of Contingency Tables (Sep 12-16)
- 241 Modern Data Communications (Sep 19-23)
- 336 Advances in Electronics Technology (Sep 19-23)
- 302 Spread Spectrum Communication Systems (Sep 26-30)
- 314 Comparative Data Base Management Systems (Sep 26-30)
- 453 Small Computer Systems (Sep 26-30)
- 212 Electronic Display (Sep 27-30)
- 291 Project Management (Sep 28-30)
- 251 Nonparametric Statistics (Oct 3-5)
- 390 Solar Heating and Cooling—Residential and Commercial Applications (Oct 3-7)

- 267 Surface and Colloid Chemistry (Oct 3-7)
 395 Digital Signal Processing (Oct 3-7)
 458 Finance for Engineers (Oct 5-7)
 252 Electromagnetic Compatibility (Oct 17-21)
 297 Mechanical Reliability (Oct 17-21)
 455 Computer Communications Systems (Oct 17-21)

*Night classes
 †Saturday classes

CONTINUING ENGINEERING EDUCATION PROGRAM

J.E. Mansfield, *Director*

The Continuing Engineering Education Program is a series of non-credit courses designed to enhance the competence of practicing engineers. The explosive growth of scientific and technological knowledge has made such programs necessary so that engineers and scientists can remain current in their fields. The courses are taught by instructors from industry, government, and universities who are in the forefront of their respective fields. The program is designed to update an engineering or science degree which may be a number of years old; to provide review courses; and to provide the latest information in the engineering, scientific, and engineering administration fields. A by-product of the program has been the beneficial associations developed among the students and between students and the staff. Although most courses presume a bachelor's degree, nondegree engineers will find the courses understandable and useful.



UNIVERSITY POLICY ON EQUAL OPPORTUNITY

In accordance with the stated policy of its Board of Trustees and in conformity with federal laws and regulations, George Washington University does not discriminate against any person on the bases of sex, race, color, religion, or national origin in any of its education or employment programs or activities. Federal regulations implementing Title IX of the Education Amendments of 1972 call for an explicit statement that the requirement not to discriminate on the basis of sex extends to employment in and admission to such programs and activities.

Inquiries concerning the application of this policy and federal laws and regulations concerning discrimination in education or employment programs and activities may be addressed to the Office of the University's Coordinator of Equal Opportunity Programs or to the Director of the Office of Civil Rights of the Department of Health, Education and Welfare.

DETACH ENTIRE PANEL AND MAIL TO:
 Continuing Engineering Education, The George Washington University, Washington, D.C. 20052

Please Note: We occasionally mail to selected lists which cannot be cross-checked against our files. Therefore, you may receive a duplicate of this announcement. If so, we hope you will pass it along to an interested associate.

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application form

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Organization _____

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☐ Register me for this course ☐ or course no. _____

☐ Payment enclosed ☐ Pay at course ☐ Bill office

Please send information on courses numbered: _____

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SCHOOL OF ENGINEERING AND APPLIED SCIENCE

CONTINUING ENGINEERING EDUCATION PROGRAM

SMALL COMPUTER SYSTEMS

MINICOMPUTERS,
MICROPROCESSORS,
AND
DESKTOP COMPUTERS

September 26-30, 1977

ROUTE TO: _____



THE
GEORGE WASHINGTON
UNIVERSITY

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